

What is claimed is:

1. A pressure vessel assembly for a pressurized fluid system, said pressure vessel assembly comprising:

5       an enclosed outer casing;

at least one fluid accumulator disposed within said outer casing; and

at least one cooling passage provided adjacent to said at least one fluid accumulator for receiving a flow of a cooling fluid therethrough for cooling said at least one fluid accumulator.

10       2. The pressure vessel assembly as defined in claim 1, further including at least one internal tube extending within said outer casing, wherein said at least one fluid accumulator is disposed within said at least one internal tube.

15       3. The pressure vessel assembly as defined in claim 2, wherein said outer casing includes a substantially tubular housing and end members secured at opposite distal ends of said housing.

4. The pressure vessel assembly as defined in claim 3, wherein said at least one internal tube extends between said end members.

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5. The pressure vessel assembly as defined in claim 3, wherein said at least one internal tube extends through said end members

6. The pressure vessel assembly as defined in claim 2, wherein said at least one cooling passage is formed within said at least one internal tube.

7. The pressure vessel assembly as defined in claim 6, wherein said at least one fluid accumulator is disposed within said at least one internal tube with a clearance defining said at least one cooling passage.

8. The pressure vessel assembly as defined in claim 7, further including at least one spiral wrapping between said at least one internal tube and said at least one fluid accumulator, said at least one spiral wrapping directs said flow of said cooling fluid through said cooling passage for increasing heat transfer from said pressure vessel to said cooling fluid.

9. The pressure vessel assembly as defined in claim 8, wherein said at least one spiral wrapping is made of an elastomeric material.

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10. The pressure vessel assembly as defined in claim 1, wherein said pressurized fluid system includes a cooling fan providing a forced air flow through said at least one cooling passage.

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11. The pressure vessel assembly as defined in claim 1, wherein said pressure vessel defines a compartment therewithin at least partially filled with a working fluid.

12. A pressure vessel assembly for a pressurized fluid system, said pressure vessel comprising:

an enclosed outer casing;

at least one internal tube extending within said outer casing; and

5 at least one fluid accumulator disposed within said at least one internal tube.

13. The pressure vessel assembly as defined in claim 12, wherein said pressure vessel defines a compartment therewithin between said outer casing and said at least one internal tube, said compartment at least partially filled with a working fluid.

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14. The pressure vessel assembly as defined in claim 1, wherein said outer casing includes a substantially tubular housing and end members secured at opposite distal ends of said housing.

15 15. The pressure vessel assembly as defined in claim 14, wherein said tubular housing is substantially cylindrical in shape.

16. The pressure vessel assembly as defined in claim 12, further including at least one cooling passage adjacent to said at least one fluid accumulator for receiving a flow of cooling  
20 fluid therethrough for cooling said at least one fluid accumulator.

17. The pressure vessel assembly as defined in claim 16, wherein said at least one cooling passage is formed within said at least one internal tube.

18. The pressure vessel assembly as defined in claim 17, wherein said at least one fluid accumulator is disposed within said at least one internal tube with a clearance defining said at least one cooling passage.

5           19. The pressure vessel assembly as defined in claim 18, further including at least one spiral wrapping between said at least one internal tube and said at least one fluid accumulator, said at least one spiral wrapping directs said flow of said cooling fluid through said cooling passage for increasing heat transfer from said pressure vessel to said cooling fluid.

10           20. The pressure vessel assembly as defined in claim 8, wherein said at least one spiral wrapping is made of an elastomeric material.

            21. The pressure vessel assembly as defined in claim 16, wherein said pressurized fluid system includes a cooling fan providing a forced air flow through said at least one  
15   cooling passage.

            22. The pressure vessel assembly as defined in claim 14, wherein said at least one internal tube extends between said end members.

20           23. The pressure vessel assembly as defined in claim 14, wherein said at least one internal tube extends through said end members.

24. The pressure vessel assembly as defined in claim 12, wherein said outer casing includes at least one internal baffle.

25. The pressure vessel assembly as defined in claim 12, wherein said at least one fluid  
5 accumulator is a hydro-pneumatic accumulator.

26. A pressure vessel assembly for a pressurized fluid system, said pressure vessel assembly comprising:

an enclosed outer casing;  
10 at least one fluid accumulator disposed within said outer casing;  
a compartment within said pressure vessel assembly between said outer casing and said at least one fluid accumulator, said compartment at least partially filled with a working fluid;

said compartment being in fluid communication with said at least one fluid  
15 accumulator so as to selectively transfer said working fluid between said compartment and said at least one fluid accumulator; and

a pressurized gas reservoir external to said outer casing, said pressurized gas reservoir being in fluid communication with said compartment within said outer casing for pressurizing said working fluid within said compartment in said outer casing.

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27. The pressure vessel assembly as defined in claim 26, wherein said compartment includes at least one internal baffle.

28. The pressure vessel assembly as defined in claim 26, wherein said working fluid is oil.

29. The pressure vessel assembly as defined in claim 26, wherein said outer casing  
5 includes a substantially tubular housing and end members secured at opposite distal ends of said housing.

30. The pressure vessel assembly as defined in claim 29, wherein said at least one  
internal tube extends between said end members.  
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31. The pressure vessel assembly as defined in claim 29, wherein said at least one  
internal tube extends through said end members.

32. The pressure vessel assembly as defined in claim 26, wherein said outer casing  
15 includes at least one internal baffle.

33. The pressure vessel assembly as defined in claim 26, wherein said pressurized  
fluid system includes a hydraulic machine having a first port fluidly connected to said at least  
one fluid accumulator and a second port fluidly connected to working fluid in said said  
20 compartment.